

The book is clearly written, contains many interesting illustrations, and, when taken in conjunction with Messrs. Björling and Gissing's work, forms a very complete descriptive account of the peat industries. Occasionally, however, the author, carried away by his enthusiasm for the utilisation of peat, refrains from directing attention to the more obvious defects in some of the schemes put forward, and leaves the capitalist in ignorance of facts which might materially alter the latter's relations to the projected industries.

The many attempts made within the past ten years to utilise our peat supplies have proceeded in three main directions, viz. the conversion of peat into fuel, the manufacture of power gas from peat, and the utilisation of peat fibres for the manufacture of paper, alcohol, moss litter, &c.

The chief difficulties attending the conversion of peat into fuel on a commercial scale are the removal of the large amount of water contained in freshly cut peat and the increase of the low specific calorific power, i.e. the calorific power of unit volume, of the fuel. The removal of the water by mechanical methods (hydraulic pressure, centrifuging, &c.), and also its removal by artificial heating, have been shown again and again to be unremunerative, and no process in which any of these methods forms a constituent part can, with normal prices prevailing for rival fuels, be regarded as economically sound. The only method for removing the water which has proved commercially successful is the method of air-drying employed by farmers for the production of their turf.

The specific calorific power of turf can be increased by converting the peat into press turf or into machine turf, but the difficulty of drying the product in a moist climate like that of Ireland, and the high cost of transport, render it unlikely that turf will displace coal as a fuel from any districts other than those in the immediate neighbourhood of peat bogs.

The manufacture of producer gas and its employment in industries such as the fabrication of glass, as well as the production of power gas and the recovery of the ammonia simultaneously formed, may under carefully selected conditions be made remunerative, but peat cannot, under any conditions likely to arise in the near future, become so cheap a source of energy as coal at the pit-mouth in England.

It is unlikely that the conversion of peat fibres into paper or into alcohol will prove successful commercially. From one ton of anhydrous, light, surface peat, by hydrolysis about 0.28 ton of reducing sugars can be obtained, and if the latter were all fermentable they would afford about forty gallons of alcohol. If this were the average yield of alcohol from peat the process would be very remunerative, but, unfortunately, about one-half the amount of sugars in hydrolysed peat consists of pentoses which are not capable of undergoing saccharomycetes fermentation, and consequently the yield of alcohol rarely exceeds twenty gallons per ton of dry peat; if surface peat is not employed in the manufacture, the yield may fall so low as five gallons per ton. If the yield of alcohol from a given speci-

men of peat falls below sixteen gallons per ton, the manufacture of "peat spirit" will be unable to compete with that of "potato spirit" owing to the greater value of the by-products in the latter industry. The peat moss-litter industry, on the other hand, is from the commercial point of view the most flourishing of all the peat industries, and is likely to prove as remunerative to the capitalist in the future as it has been in the past.

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#### THE HEALTH OF THE SCHOOL CHILD.

*The Hygiene of School Life.* By Dr. Ralph H. Crowley. Pp. xiv+403. (London: Methuen and Co., 1910.) Price 3s. 6d. net.

IN his preface to this work the author states that it was written while he was medical superintendent to the Bradford Education Authority, and that the conclusions arrived at and the measures advocated are based upon his own practical experience gained amongst the schools and school-children of that city. He furthermore states that the views expressed receive no added sanction from the fact that he now holds an official position in the Medical Department of the Board of Education. Although this may be so, it seems as if his present position is responsible (through the official non-committal attitude it has engendered) for the one outstanding deficiency of the book, namely, a lack of definiteness and of detail. For instance, one who consults a manual upon the hygiene of school-life might reasonably expect some definite directions upon the cleansing and disinfection of school premises; the measurements of seats and desks for children in different age groups, with the appropriate slope of desks for reading and writing purposes; the distances recommended between the hanging-pegs of cloak-rooms; but in these respects, as in so many others, he will find but generalities. Indeed, generally speaking, the work is sketchy, and requires the addition of fuller and often more definite information to become a useful addition to the already voluminous literature upon the subject of school hygiene.

It need scarcely be said that the matter given and the views expressed by one with the experience and knowledge of Dr. Crowley are sound, and that certain parts of the work reach a good standard of merit; more especially is this true of the chapters upon special groups of school-children. The chapter upon medical inspection of the child in the school is also very good, and it impresses upon the reader the fact that medical inspection, and all that it involves, has a part to play now and in the future, the importance of which can hardly be over-estimated. As Dr. Crowley states in his introduction, it is a service which stands out clear and well-defined, demanding of the medical men and women who perform it the highest qualifications and attainments. While essentially a part of the public health service, it is nevertheless a department which can never know its own full development until it recognises itself as a part of the whole public health service of the country, and links itself up and has an organic relation with that

service. Although it is some sixty years ago since a certain measure of medical inspection of school-children was initiated in Paris, and Great Britain has been so slow to adopt a provision the value of which has been appreciated by many other countries for many years, the work has been started in this country with such zeal and enthusiasm that we promise very shortly to have established throughout these islands a scheme which will compare favourably with that of any other country. But it is essential to the best results that there should be a better knowledge of the demands of school hygiene among medical men who are called upon to work in connection with the schools, and also among the teachers; and suitable manuals upon this subject are therefore of great value and importance. The present work is so suitable in many respects that it is to be hoped that in a future edition more explicit information upon many of the practical details of school hygiene, which are wanting in the present volume, will be included.

#### MODERN SCHOOL GEOGRAPHY.

- (1) *Narrative Geography Readers*. By G. F. Bosworth. Book i., pp. viii + 133; book ii., pp. viii + 145. (London: Macmillan and Co., Ltd., 1910.) Price 1s. each.
- (2) *A Systematic Geography of Europe*. By G. W. Webb. Pp. viii + 96. (London: Methuen and Co., 1910.) Price 1s.
- (3) *Narratives Selected from Peaks, Passes and Glaciers*. Edited by G. Wherry. Pp. iii + 156. (Cambridge: University Press, 1910.) Price 1s.
- (4) *Cambridge County Geographies: Cheshire*. By T. A. Coward. Pp. x + 207 + maps. (Cambridge: University Press, 1910.) Price 1s. 6d.
- (5) *An Elementary Practical Geography for Middle Forms*. By F. Mort. Pp. 91. (London: Blackie and Son, Ltd., 1909.) Price 2s.
- (6) *A School Economic Atlas*. By Dr. J. G. Bartholomew, with Introduction by Prof. L. W. Lyde. Pp. xii + 64. (Oxford: The Clarendon Press, 1910.) Price 2s. 6d. net.

A SET of new school books in geography suggests the possibility of finding from an examination of their contents the main lines along which instruction in this subject is tending at the present time to crystallise.

With a single exception the books named above differ considerably from those in school use ten to fifteen years ago: they suggest development in three directions, the first being that of the story told to beginners, the others, for older pupils, being the scientific methods of actual investigation by the pupil from the raw material of geographical records, and of considering the results of special study as placed together in a monograph, if such a word may be used in this modest connection, or of considering the actual experiences described by the traveller.

The single exception, Mr. Webb's "Systematic Europe" (2), recalls the old type of text-book, with its tit-bit collection of facts, of which the following is a specimen:—"Elche is famous for its date palms" (p. 32). Less than one-fifth of the book is given to a

general survey of the Continent, and the remainder is a fairly systematic treatment of the separate countries. Many of the facts seem to be unimportant; others are such as a good pupil might reasonably be expected to find out for himself from a modern atlas, provided he had had some little training in investigation. The attempts in the large-type matter to trace causal connections are not always happy, as, for example, in regard to the Gulf Stream, which is described as washing the western shores of Scandinavia, and to the Föhn effect, which is called a wind.

The "Narrative Readers" (1) set forth, in the first place, facts concerning the lives of children in other lands, and from the stories of their habits and surroundings the author passes to the stories of such interesting things as the whale fishery, Captain Cook's voyages, or the mutiny of the *Bounty*. The child is frequently referred to an atlas, but it would probably be better if the reference were to a globe which could be presented as a model of the earth.

At a certain stage of development it is more important that the child should be able to do things for himself than that he should memorise facts presented to him by an adult; and it is probable that no school subject provides a means for work of this nature so easily and so universally available as geography, hence the development of practical work in this subject. For this the main requirement is a good atlas, and the Clarendon Press is to be congratulated that the first venture in the provision of an atlas is one so likely to be largely adopted as the one under review (6). The child who works through the ample supply of material in the spirit outlined in Prof. Lyde's introduction will be well equipped as a thinker in terms of geography. From the point of view of scientific accuracy it would perhaps be helpful if some numerical values were added to the statistical diagrams relating to the main products of economic importance, and also that the values given should be either triennial or quinquennial averages; possibly future editions will be improved in these directions. Many additional facts are given in the introduction in a concentrated and technical language, presumably for the benefit of the teacher.

Before such an atlas can be used the pupil should have had some preliminary training in the making of similar maps, and for this purpose are provided for schools those books of practical geography of which Mr. Mort's is one example. Although it deals with contouring, with climate, and with vegetation, this book illustrates markedly the indefiniteness of the boundaries of school geography, for some of the earlier work suggested should probably be called observational nature-study, while much of the plane-tableing is surveying work which would, to many teachers, appear to be beyond the scope of a school course. Mr. Mort's book is not entirely "heuristic," as he tells many facts which the pupil might be expected to find out for himself.

It is not possible in practical exercises of this nature to cover the entire ground of geographical studies, and therefore the pupil is provided with two other kinds of text for reference or special study. The first